इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”
Mazdoor Kisan Shakti Sangathan
“The Right to Information, The Right to Live”

“पुराने को छोड नये के तरफ”
Jawaharlal Nehru
“Step Out From the Old to the New”

IS 8434 (1977): Airconditioning requirements on boardships
[TED 17: Shipbuilding]

“ज्ञान से एक नये भारत का निर्माण”
Satyanarayan Gangaram Pitroda
“Invent a New India Using Knowledge”

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”
Bhartṛhari—Nītiśatakam
“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE

BRUTUM FULMEN

IGNORANTIA JURIS NON EXCUSAT

PROTECTED BY COPYRIGHT

IS : 8434 - 1977

(Reaffirmed 2005)

Indian Standard

AIR-CONDITIONING REQUIREMENTS ON BOARD SHIPS

UDC 628·84 : 629·12·065

© *Copyright* 1977

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Price Rs 5·00 Gr 1

August 1977

Indian Standard
AIR-CONDITIONING REQUIREMENTS ON BOARD SHIPS

Shipbuilding Sectional Committee, MCPD 1

Chairman	*Representing*
Shri S. Parmanandhan	Ministry of Defence (NHQ)
Members	
Chief Mechanical Engineer, Calcutta Port Trust	Ports Consultative Organization, New Delhi
Chief Mechanical Engineer, Bombay Port Trust (*Alternate*)	
Shri V. G. Damle	AFCO Ltd, Bombay; *and* Institute of Marine Technologists, Bombay
Shri R. D. Paralkar (*Alternate*)	AFCO Ltd, Bombay
Shri A. T. Joseph (*Alternate*)	Institute of Marine Technologists, Bombay
Shri I. N. Pradhan (*Alternate*)	
Shri R. S. Sachdev (*Alternate*)	
Director of Naval Construction	Ministry of Defence (NHQ)
Shri V. P. Goyal	Mukand Iron & Steel Works Ltd, Bombay
Shri Sudarshan Kumar (*Alternate*)	
Shri D. B. Irani	Directorate General of Shipping, Bombay
Shri G. K. Kuriyan	Central Institute of Fisheries Technology, Cochin
Cdr N. A. Mullerworth	Ministry of Defence (DGI)
Lt Cdr Mehr Singh (*Alternate*)	
Shri I. N. Pradhan	Indian National Shipowners' Association, Bombay
President	Institute of Marine Engineers, Bombay
Shri P. C. Kumar (*Alternate*)	
Shri H. K. Kaul (*Alternate*)	
Shri K. S. Mani (*Alternate*)	
Shri R. K. Mehrotra (*Alternate*)	
Capt N. P. Mukundan (*Alternate*)	
Shri S. Raghavan	Ministry of Shipping and Transport
Shri T. S. Rajan	Ericson & Richards, Bombay
Shri H. S. Rao	Indian Register of Shipping, Bombay
Capt D. S. Rupa	Shipping Corporation of India Ltd, Bombay
Shri S. Sundaram (*Alternate*)	

(*Continued on page* 2)

© *Copyright* 1977
INDIAN STANDARDS INSTITUTION

This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

(*Continued from page* 1)

Members	*Representing*
SHRI R. SARANGARAJAN	Directorate General of Technical Development, New Delhi
SHRI B. R. SAWARKAR	Cochin Shipyard Ltd, Cochin
SHRI P. R. GOVIL (*Alternate*)	
SHRI W. R. D. SAXTON	Lloyd's Register of Shipping, Bombay
SHRI D. MADHOK (*Alternate*)	
SHRI S. G. SCHAEFFER	American Bureau of Shipping, Bombay
SHRI K. SHARMA (*Alternate*)	
SHRI A. K. SEN	Garden Reach Workshops Ltd, Calcutta
SHRI D. S. SHETH	Hindustan Shipyard Ltd, Visakhapatnam
SHRI M. G. KUTTY (*Alternate*)	
SHRI G. SINHA	SF India Ltd, Calcutta
SHRI H. SVENSSON (*Alternate*)	
SHRI T. N. SUJAN	Larsen & Toubro Ltd, Bombay
SHRI P. S. DAS, Director (MCPD) (*Secretary*)	Director General, ISI (*Ex-officio Member*)

Indian Standard

AIR-CONDITIONING REQUIREMENTS ON BOARD SHIPS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 7 April 1977, after the draft finalized by the Shipbuilding Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

0.2 Most of the ships that are built today are required to have an efficient air-conditioning system to meet the crew comfort and to maintain a high standard of efficiency as well as alertness in operational compartments such as bridge, machinery control room, etc. In addition they are also to meet certain stringent requirements for installation and operation of electronic equipment as well as machinery such as gyro, radar, etc. Taking these factors into consideration, this standard has been formulated.

0.2.1 In view of the above and in order to ensure adequate capacity of air-conditioning plant, it was felt necessary to formulate a standard first on the air-conditioning requirements on board ships.

0.3 As a systematic approach, it is intended to formulate a series of Indian Standards on marine air-conditioning. This standard is the first one of series, and is based on practices prevalent in the shipbuilding industry of the country as well as overseas. Other standards in the series covering the following sub-groups will be formulated later.

a) Heat load calculations and design procedure for the air-conditioning system;
b) Code of practice for selection and installation of air-conditioning system;
c) Code of practice for insulation; and
d) Tests, trials and certification of shipboard air-conditioning system.

1. SCOPE

1.1 This standard specifies the requirements for air-conditioning of accommodation spaces, offices, operation spaces and other specialized compartments.

2. CONDITIONS

2.1 Summer

2.1.1 *Primary* — The inside temperature of 28°C with 50 percent relative humidity (RH) shall be obtained to an outside ambient temperature of 35°C with 70 percent RH.

2.1.2 *Secondary* — The air-conditioning system shall be able to maintain an inside temperature of 24°C and 50 percent RH for an outside condition of 28°C and 80 percent RH.

2.2 Winter — For an outside temperature of −20°C the inside temperature of +20°C and 50 percent RH shall be attained.

2.3 Fresh Air

2.3.1 The quantity of fresh air supply shall not be less than 25·5 m^3 per person per hour.

2.3.2 The number of changes of conditioned air shall be not less than 4 per hour in living rooms and 6 per hour in public rooms.

2.3.3 The content of fresh air in the circulated air shall not be less than 45 percent by volume.

2.3.4 In all cases whichever quantity of fresh air is the highest shall be applicable.

2.4 The difference in temperature between the cabin air and air supplied from the duct should not be more than 10°C.

2.5 Recirculation air to be collected from at least one point on each deck and shall not be taken from pantry, hospital and sanitary spaces. Recirculation air shall be taken through louvres in door, alleyway through recirculation grills and ducting to the air handling units. The inlet and distribution grills should be so designed that it will meet full fan capacity to supply fresh air with no recirculation.

2.6 Branches to hospital and sanitary spaces shall be provided with non-return flaps. Self-closing isolation doors or other suitable arrangements shall be provided with lobbies for all accesses to open decks and galleys and hot compartments, such as engine room casing, etc.

2.7 The plant shall be positively balanced so as to allow the supply of fresh air to be more than the quantity exhausted.

3. PLANT CAPACITY

3.1 For ships of more than 3 000 GRT, more than one compressor plant shall be necessary and in such a case when any one plant goes out of order, a minimum of 65 percent of the heat load should be capable of being absorbed. This is for the compressor and associated units and not for the fans and air treatment units.